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Current Language:	English	**Last Modified**:	6/6/2014
Other Languages:	NONE	**Author**:	Charles Schroeder
Viewed:	140		

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Title: **Brake Light Operation on TerraStar with HydroMax brakes**

Applies To: **TerraStar**

Change Log

Dealers: Please refer to the change log text box below for recent changes to this article:

06/05/2014 - Article Created

Description

The TerraStar uses one brake switch, which is located in the cab on the clevis pin on the brake pedal.

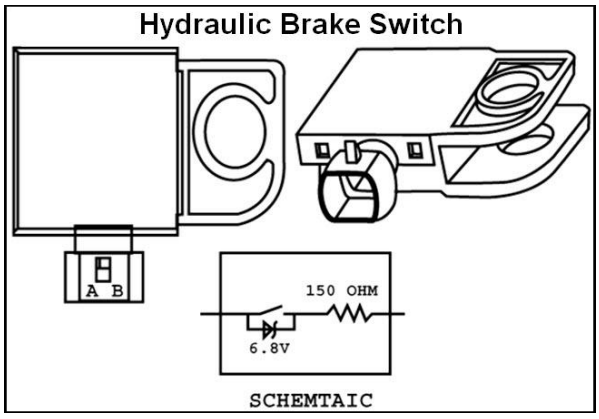
It uses a zero volt reference (ZVR) signal from the Body Controller J5 (1602) - terminal E5 to the Brake Switch (1814A) - terminal B.

When the key is in the ignition position, 12 volts will be applied to brake switch (1814A) - terminal A. When the key is in the off position 5 volts is supplied to terminal A of the switch instead of 12 volts.

A 6.8 volt Zener diode, inside the switch body is wired in parallel with the switch contacts. The diode allows current to pass through it when the key is in the ignition position and 12 volts is applied to the switch. The diode prevents current from passing through it when the key is off and 5 volts is applied to the switch. When the key is on and the brake is not applied, the BC monitors the voltage drop across the diode and 150Ω resistor in the switch. If there is an open in the brake switch circuits there will be no voltage drop and the BC will set a fault. The diode is required to block current flow when the key is off, preventing the circuits from putting a drain on the battery.

A 150 ohm resistor, inside the switch body, is wired in series with the switch. The BC senses the voltage drop across this resistor to check for a short to ground in the brake switch circuits between the brake switch and the BC. If there is a short, 12 volts from the BC will be pulled to ground and the BC will set a fault.

When the brake switch is closed the voltage drop will change and the BC will sense that the brake is applied.



Symptoms

- Brake lights stay on
- Brake lights not working

Possible Diagnostic Trouble Codes

SPN	FMI	Module	Description	DLB Logical Signal
597	0	Body Controller	Brake Switch reading above normal range	Brake_Analog_Switch_ Raw_Signal
597	1	Body Controller	Brake Switch reading below normal range	Brake_Analog_Switch_ Raw_Signal
597	2	Body Controller	Brake Switch inputs do not match	Brake_Switch_Signal
597	7	Body Controller	Brake Switch stuck open or closed	Brake_Switch_Signal
597	14	Body Controller	Brake Switch stuck open or closed Brake Switch inputs do not match	Brake_Switch_Signal

Special Tools or Software

- Diamond Logic Builder Software
- Digital Multimeter

Signals to Watch

Use Diamond Logic Builder to make a session from the feature installed for the Full Power Brake System. For assistance in making a session from a feature in DLB, please follow IK2600008 - How to Diagnose Electrical Problems with Diamond Logic Builder

- 0595AAD - BC PROG, BRAKE SWITCH
- Check for any fault codes follow IK2600036 - Retrieving Fault Codes with DLB for assistance with this.
- Brake_Switch_Signal and Brake_Analog_Switch_Raw_Signal are considered separate signals internally to the Body Controller, even though they both come from the single wire input on 1602-E14. This is due to processing of the signal for fault detection.
- The Body Controller does not run diagnostics on the brake switch when the key is off. Brake_Analog_Switch_Raw_Signal is not used when the key is off and the Body Controller uses Brake_Switch_Signal as the only input when the key is off.
- All troubleshooting should be performed with the key on.

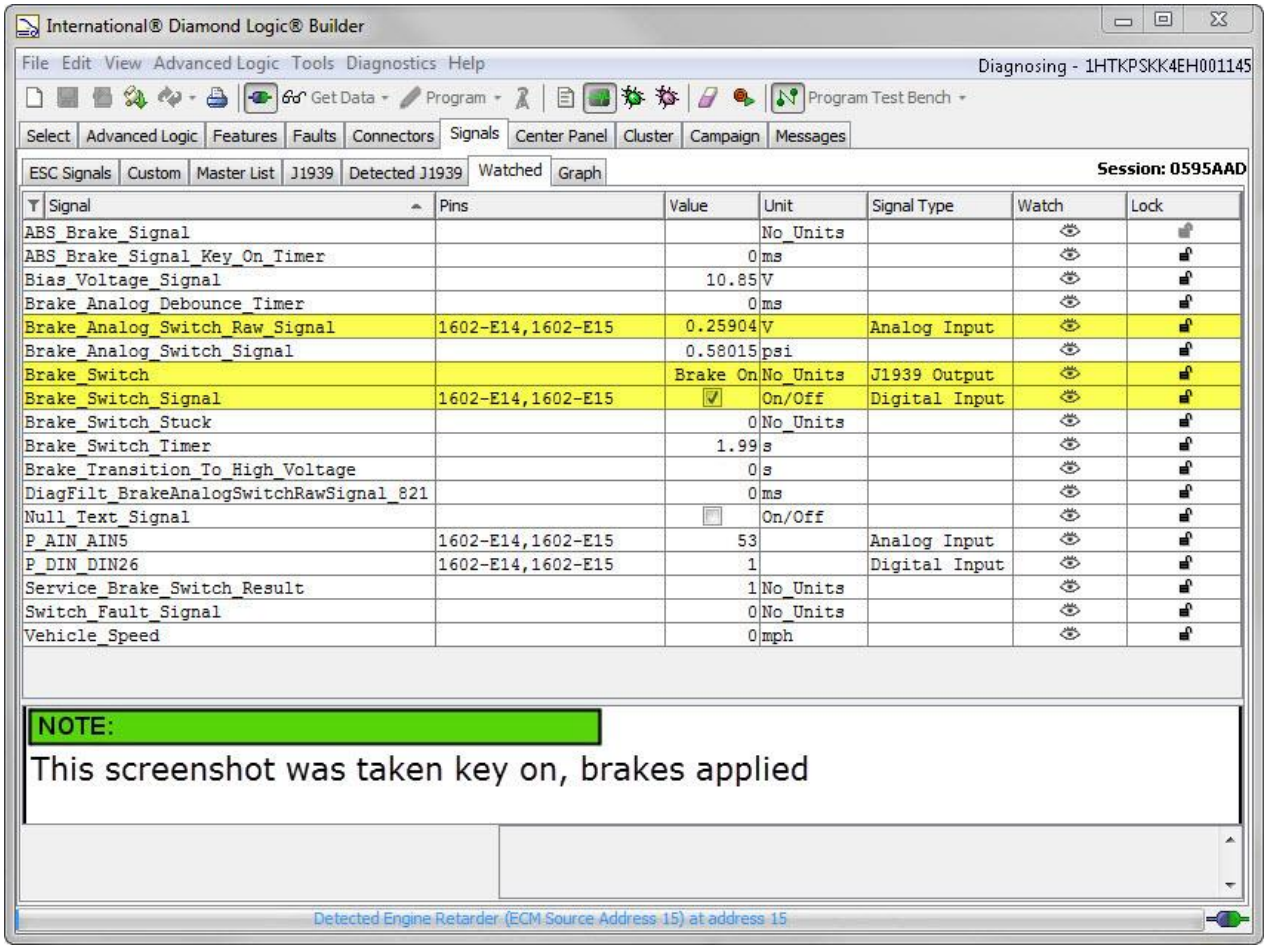
Signal Values - Check with Key On

DLB Logical Signal (Key On)	Value (Brakes Applied)	Value (Brakes Released)

Brake_Analog_Switch_Raw_Signal	0.28v	1.6v
Brake_Switch_Signal	Checked	No Check
Brake_Switch	Brake On	Brake Off

NOTE:

The values in DLB should be close to the values in the table above. The screen shot below is one example taken from a properly working TerraStar. The value shown in DLB will not match the voltage you measure with the breakout box on the 1602 connector. The Body Controller uses resistors internally to measure volt drop. That is why the value shown in the session does not match the physical value measured on the wire.



Parts Information

Part #	Description	Qty.
2505677C91	Kit, Brake Switch	1

Other Resources

- 0000002529 TerraStar® Electrical Circuit Diagrams (Formerly S08362)
- s08361 Electrical System Troubleshooting Guide — DuraStar®, TerraStar®, TranStar®, and WorkStar® Models Built May 2010 and Later

SRT Information

Group	Noun
08840 - Spotlights	864 - Switch, Stoplight—Hydraulic

SRT Description	SRT Code Link		SRT (hr)
Stop Light Switch (Hydraulic), Replace	A08-795	(All Models)	0.6
Monitor DLB Signals (T-Time)	A08-T1	(All Models)	0.4
Wiring Repairs, Perform	A08-2001A	(All Models)	0.2
Wiring Repairs, Perform	A08-2002A	(All Models)	0.4
Wiring Repairs, Perform	A08-2003A	(All Models)	0.6

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